

Application No. 10/762,179

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A multi-beam raster output scanning system, comprising:

a photoreceptor;

an array of vertical cavity surface emitting laser light sources each having a programmable driver for producing a corresponding light beam directed to said photoreceptor;

calibrated uniformity values corresponding to each light beam as determined by the intensity of the beam on said photoreceptor;

an array of photodetectors;

a beam splitter for deflecting said light beams onto said photodetector array; and

an array of feedback loops for simultaneously adjusting beam intensity using said programmable drivers for each said light beam wherein each said programmable driver uses said calibrated uniformity values with said photodetector array as a reference source to adjust for parallel beam to beam uniformity correction produced by said array of vertical cavity surface emitting laser light sources as calibrated for a nominal value of intensity on the surface of said photoreceptor.

2. (Original) The multi-beam scanning system according to claim 1, wherein said programmable drivers uses digital to analog converters for varying an amount of current into each said light source for adjusting said beam intensity.

Application No. 10/762,179

3. (Original) The multi-beam scanning system according to claim 2, further comprising memory for storing adjusted calibrated uniformity values derived from simultaneously adjusting said beam intensity for use by said digital to analog converters for varying said amount of current into each said light source.

Application No. 10/762,179

4. (Currently Amended) The multi-beam scanning system according to claim 2, further comprising memory having stored coefficient values for compensating for aging effects of said light sources by using said coefficient values derived empirically and for use by said digital to analog converters for varying said amount of current into each said light source.

5. (Original) The multi-beam scanning system according to claim 2, further comprising memory having stored coefficient values for compensating for aging effects of said light sources by using said coefficient values derived mathematically for use by said digital to analog converters for varying said amount of current into each said light source.

6. (Canceled) The multi-beam scanning system according to claim 1, wherein said array of light sources is a vertical cavity surface emitting laser array.

7. (Currently Amended) A method for achieving beam to beam uniformity on a photoreceptor, comprising:

generating a plurality of light beams from an array of vertical cavity surface emitting laser light sources using programmable drivers;

calibrating the intensity of each of the said plurality of light beams on the surface of the photoreceptor to obtain calibrated uniformity values;

splitting said plurality of light beams through a beam splitter for receipt on a photodetector ~~photodetector~~-plane having an array of photodetectors;

measuring output power for each light beam using a photodetector ~~photodetector~~; and

adjusting an intensity for each said light beam simultaneously through an array of feedback loops using said programmable drivers and said calibrated uniformity values wherein each programmable driver uses said photodetector

Application No. 10/762,179

array as a reference source to adjust for beam to beam uniformity correction produced by said array of light sources.

Application No. 10/762,179

8. (Original) The method according to claim 7, further comprising:
varying an amount of current into each said light source for adjusting said beam intensity by said programmable drivers using digital to analog converters.
9. (Currently Amended) The method according to claim 8, wherein said array of feedback loops further comprising:
summing said output power from each said ~~photodetectors~~ ~~photodetecter~~ with said calibrated uniformity values ~~an~~ output from said digital to analog converters wherein said output from said digital to analog ~~analog to digital~~ converters having a value set to produce beam to beam uniformity.
10. (Original) The method according to claim 9, further comprising:
storing adjusted calibrated uniformity values in memory derived from simultaneously adjusting said beam intensity for use by said digital to analog converters for varying said amount of current into each said light source.
11. (Original) The method according to claim 8, further comprising:
compensating for aging effects of said light sources by using coefficient values derived empirically and stored in memory for use by said digital to analog converters for varying said amount of current into each said light source.
12. (Original) The method according to claim 8, further comprising:
compensating for aging effects of said light sources by using coefficient values derived mathematically and stored in memory for use by said digital to analog converters for varying said amount of current into each said light source.
13. (Canceled) The method according to claim 7, further comprising:
producing said light beams using a vertical cavity surface emitting laser array.

Application No. 10/762,179

14. (Currently Amended) A printer, comprising:

a photoreceptor;

an NxM array of vertical cavity surface emitting laser sources each having a programmable laser driver for producing a light beam directed to said photoreceptor;

calibrated uniformity values corresponding to each light beam as determined by the intensity of the beam on said photoreceptor;

an NxM array of photodetectors;

optical means to deflect said light beams onto said photodetector array;

and

an NxM array of feedback loops to simultaneously adjust an intensity for each beam in parallel through each said programmable laser driver wherein each programmable laser driver uses said calibrated uniformity values with said photodetector array to correct for beam to beam uniformity correction as calibrated for a nominal value of intensity on the surface of said photoreceptor.

15. (Original) The printer according to claim 14, wherein said programmable laser driver uses digital to analog converters for varying an amount of current into each light beam.

16. (Original) The printer according to claim 14, further comprising non-volatile memory for storing calibrated uniformity values corresponding to each light beam.

17. (Original) The printer according to claim 14, further comprising non-volatile memory for compensating for long term aging of said light beams by using stored values derived empirically in said non-volatile memory.

Application No. 10/762,179

18. (Original) The printer according to claim 14, further comprising non-volatile memory for compensating for long term aging of said light beams by using stored values derived mathematically in said non-volatile memory.

19. (Canceled) The printer according to claim 14, wherein said NxM array of light beams is a vertical cavity surface emitting laser array.

20. (Original) The printer according to claim 14, wherein said programmable laser driver uses an eight-bit digital to analog converter.